

IN THE U.S. PATENT AND TRADEMARK OFFICE

Inventor James J. WANG et al  
Patent App. 10/791,326  
Filed 2 March 2004 Conf. No. 1809  
For TOPICAL COSMETIC COMPOSITION CONTAINING HYBRID  
SILICONE COMPOSITE POWDER  
Art Unit 1609 Examiner Helm, C  
Hon. Commissioner of Patents  
Box 1450  
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 1.132

I, Dr. James J. Wang, a citizen of the United States  
residing at 149 San Juan Avenue, Albertson, NY 11507, declare as  
follows:

THAT I have been awarded the degree of PhD in chemistry  
from a fully accredited college or university;

THAT I have a number of years of experience in the  
synthesis and testing of polysilicone compositions, especially  
polysilicone compositions, used in the preparation of cosmetic  
compositions;

THAT my full curriculum vitae may be attached hereto;

THAT I am an Applicant in US Patent Application Serial No. 10/791,326 filed 3 March 2004 and directed to a TOPICAL COSMETIC COMPOSITION CONTAINING HYBRID SILICONE COMPOSITE POWDER;

THAT in order to demonstrate the structure of our spherical hybrid silicone composite powder containing the two interpenetrating polymer networks of PMS and PMSQ, we include Figure 1 attached to this declaration, which is an illustrative drawing showing microfine spherical powder of IPN structure comprising networks of PMS and PMSQ;

THAT in order to further demonstrate the structure of the spherical particles having a particle size of 3 to 10  $\mu$ , we include a scanning electron microscope (SEM) picture thereof attached as Figure 2; and

THAT in order to demonstrate that the hybrid silicone composite powder, according to the present invention, having a spherical shape with a particle diameter ranging from 2 to 10 $\mu$ m, comprising polydimethylsiloxane (PMS) and polymethylsilsesquioxane (PMSQ) networks, wherein the PMS and PMSQ networks form a composite structure of two interpenetrating polymer networks, which are held together by physical entanglements on a molecular scale without chemical bonding between them, when added to the silicone fluid

cyclopentasiloxane (DC 245), form a silicone gel (Formula 3) with a surprisingly higher viscosity than the viscosity of a silicone gel obtained by employing PMS per se in the same cyclopentasiloxane (Formula 1) or by merely mixing PMS and PMSQ in the same cyclopentasiloxane (Formula 2), supplied at the same weight ratio and concentrations, I have either personally conducted or supervised the carrying out of the following tests:

#### Preparation of Silicone Gel

Three translucent silicone gels were prepared by blending together the following ingredients:

Formula 1 24 g PMS (EP-LS) blended in 160 g of cyclopentasiloxane;  
Formula 2 21.60 g of PMS (EP-LS) and 2.40 g of PMSQ (PSQ) blended in 160 g of cyclopentasiloxane; and

Formula 3 24.00 g of EPSQ (blend of PMS network and PMSQ network blended in 160 g of cyclopentasiloxane according to the present invention

Each of the compositions of Formula 1, Formula 2 and Formula 3 was prepared and tested at a 13% concentration in cyclopentasiloxane at room temperature. The results are set forth in Figure 3 attached to this declaration.

The viscosities of each of Formula 1, Formula 2 and Formula 3 were determined in cPs, and are presented in Figure 3, which is attached to this declaration;

THAT the results clearly show that Formula 3 composition prepared according to the present invention, shows the highest viscosity compared to the regular silicone elastomer (PMS) in the Formula 1 composition and to the blend of silicone elastomers PMS/PMSQ in the Formula 2 composition;

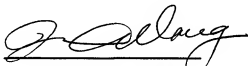
THAT in addition we tested the feel of the silicone gel of Formula 1, Formula 2 and Formula 3 on several test volunteers, 12 volunteers received the Formula 1 composition, 12 volunteers received the Formula 2 composition and 12 volunteers received the Formula 3 composition. We found that the gel having the Formula 3 composition when applied directly to the skin showed a very dry-smooth, non-oily, non-greasy feel, and provided a unique matte appearance, not at all the same as when Formula 1 or Formula 2 were employed instead.

THAT I am aware of no data inconsistent with those presented herein or which would lead one to a contrary conclusion.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

12/15/08

Date

  
Dr. James J. Wang

Enc: FIGS. 1, 2, 3

Curriculum Vitae

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## James J. Wang

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Albertson, NY 11507

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- Education:** Post-doctoral research associate Department of Chemistry, State University of New York at Stony Brook, NY 11794, 9/1987-9/1989. (Supervisor, Benjamin Chu, Distinguished Professor)  
Ph.D. polymer chemistry Department of Chemistry, Jilin University, Jilin, P.R. China, 3/1982-7/1987. ( Ph.D. advisor, Jiacong Shen, professor of chemistry and Member of The National Academy of Science)  
B.S. chemistry Department of Chemistry, Jilin University, Jilin, P. R. China, 2/1978-12/1981
- Expertise:** Silicone materials synthesis and chemical process Equilibration reaction, hydrosilylation reaction, silane hydration/condensation reaction, silicone gel preparation, silicone resin powder preparation, silicone acrylate copolymer preparation, silicone surfactants preparation.  
Polymer synthesis via anionic, radical and condensation methods; chemical modification of polymers via organic reactions; Isolation and purification of polymer/organic compounds; organometallic compounds, ion-containing polymers, siloxanes, olefin oxide, urethanes, acrylics, epoxy, polysulfones, crystalline polymers, water-soluble polymers.  
Identification and characterization of organic compounds and polymers using NMR, FTIR, UV, HPLC/GPC, GC-MS, X-ray, osmometry.  
Material structure and property using DSC, TGA, DMA, rheometry, electron microscopy, birefringence and light scattering, small angle X-ray scattering  
Computer and instrumentation UNIX, VAX/VMS, PC and Macintosh, programming for data acquisition and analysis. Design and construction of computer controlled experimental instruments.
- Experience:** Director of Technology & Asia Marketing Manager Grant Industries, Inc, Elmwood Park, New Jersey, 7/1995 to present. Developed specialty silicone gels, microsphere powders, UV protection agents, silicone surfactants for cosmetic applications. Trained and supported overseas distributors and executed marketing strategies.  
Senior Scientist Moltech, Inc., Stony Brook, New York, 6/1994-6/1995. Research and development of lithium battery and solid electrolytes.  
Research Professor Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, CA 93106, 7/1992-5/1994. Polymer rheology, dynamics and dynamic light scattering.

Research associate Department of Chemistry, State University of New York at Stony Brook, NY 11794, 9/1987-6/1992. Synthesis and characterization, NMR, FTIR, UV, GPC, rheometry, laser light scattering, small angle X-ray scattering, birefringence, acrylics, ionic polymers, epoxy, urethanes, olefin oxide, crystalline polymers, conducting.

**Membership:** American Chemical Society, Society of Cosmetic Chemists of America

**Citizenship:** Citizen of the United States

**Journal Publications:**

1. **Jian Wang**, Qinwei Wang, Meilin Yang and Jiacong Shen, "Synthesis of Star Branched Polystyrenes Having the Same Length of Branch Chain", *Chem. J. Chinese Universities*, 1985, 6, 657.
2. **Jian Wang**, Jingjiang Liu, Qingyang Wei and Jiacong Shen, "Synthesis and Mechanical Properties of SIS Block Copolymer", *Polym. Materials Sci. Eng.*, 1985, 1, 25.
3. **Jian Wang**, Qingyang Wei, Jingjiang Liu and Jiacong Shen, "Morphological and Mechanical Properties of SIS Thermoplastic Elastomer", *Chinese J. Applied Chem.*, 1985, 2, 36.
4. **Jian Wang**, Jingjiang Liu and Jiacong Shen, "Dynamic Mechanical Properties of SIS Branched Block Copolymers", *Chem. J. Chinese Universities*, 1986, 7, 182.
5. Jingjiang Liu, **Jian Wang** and Jiacong Shen, "The Glass Transition Temperature and Relaxation in Interphase for Styrene-Isoprene Star-Shaped Block Copolymer", *Chinese J. Applied Chem.*, 1986, 3, 41.
6. Yushu Gao, **Jian Wang** and Jiacong Shen, "Comparison of GPC and Thermal Field Flow Fractionation Methods for Linear and Star-Branched Polystyrene Samples", *Polymer Communications*, 1986, 3, 231.
7. **Jian Wang**, Jingjiang Liu, Meilin Yang and Jiacong Shen, "Glass Transition Temperature and Liquid-Liquid Relaxation of Star-Shaped Polystyrenes", *Chem. J. Chinese Universities*, 1987, 8, 273; *Chem. J. Chinese Universities( Eng. Ed.)*, 1987, 3, 47.
8. **Jian Wang**, Shiyong Hua, Ying Li, Zuwen Qiu and Jiacong Shen, "Molecular Motion of Star-Shaped Polystyrenes in Solution Studied by Carbon-13 NMR(I)", *Chem. J. Chinese Universities*, 1987, 8, 1127.

9. **Jian Wang**, Shiyang Hua, Zuwen Qiu and Jiacong Shen, "Studies on Molecular Motion of Star-Shaped Polystyrenes in Solution by Carbon-13 NMR(II)", *Chem. J. Chinese Universities*, 1988, 9, 488.
10. **Jian Wang**, Jiacong Shen, Yuanshou Zhang and Jingjiang Liu, "Entanglement and Relaxation of Star Polystyrenes", *Chinese J. Applied Chem.*, 1988, 5, 16.
11. **Jian Wang**, "A Modification of RBZ Molecular Theory for Entangled Network of Branched Polymers", *J. Qingdao Int. Chem. Techn.*, 1988, 9(2), 54.
12. **Jian Wang** and Jiacong Shen, "Transmission Electron Microscopy Study of the Morphology of SIS Block Copolymer", *J. Qingdao Int. Chem. Techn.*, 1988, 9(3), 39.
13. **Jian Wang**, Jiacong Shen, Yuanshou Zhang and Jingjiang Liu, "Structural Dependence of the Bulk Viscoelastic properties of Star Branched Polystyrenes", *Polymer Communications*, 1989, 4, 397.
14. Benjamin Chu, **Jian Wang** and Wendel J. Shuely, "Solution Behaviors of a Random Copolymer of Poly(iBMA-tBAEMA) 1. Laser Light Scattering Studies", *Macromolecules*, 1990, 23, 2252.
15. Benjamin Chu, **Jian Wang** and Wendel J. Shuely, "Solution Behavior of a Random Copolymer of Poly(iBMA-tBAEMA) 2. Viscosity and Light Scattering Study", *Polymer*, 1990, 31, 805.
16. Zhulun Wang, **Jian Wang**, Benjamin Chu and Dennis G. Peiffer, "Solution Behavior of Random Copolymers of Styrene With Sodium-2-Acrylamido-2-Methyl Propane Sulphonate", *J. Polym. Sci. Polym. Phys.*, 1991, 29, 1361.
17. **Jian Wang**, Zhulun Wang, Benjamin Chu and Dennis G. Peiffer, "Light Scattering and Small Angle X-ray Scattering Studies of the Aggregates of an Ionomer Solution", *Macromolecules*, 1991, 24, 790.
18. Benjamin Chu, **Jian Wang**, Dennis G. Peiffer and Wendel J. Shuely, "Effects of an Ionomer Additive on the Rheological Properties of a Random Copolymer Poly(isobutyl methacrylate-tert-butyl aminoethyl methacrylate)", *Macromolecules*, 1991, 24, 809.
19. **Jian Wang**, Dennis G. Peiffer, Wendel J. Shuely and Benjamin Chu, "Rheological Properties and Association Behavior of Mixtures of Poly(isobutyl methacrylate-tert-butylaminoethyl methacrylate) and an Ionomer in Solution", *Macromolecules*, 1991, 24, 4349.

20. Benjamin Chu and **Jian Wang**, "Magnet Enhanced Optical Falling Needle/Sphere Rheometer", *Rev. Sci. Instrum.*, 1992, 63, 2315.
21. **Jian Wang**, Alexei R. Khokhlov, Dennis G. Peiffer and Benjamin Chu, "Phase Equilibria in the Ternary System Zinc Sulfonated Polystyrene/Poly(ethyl acrylate-4 vinyl pyridine)/Tetrahydrofuran", *Macromolecules*, 1992, 25, 2566.
22. Benjamin Chu, Tong Gao, Yingjie Li, **Jian Wang**, Richard Desper and Catherine A. Byrne, "Microphase Separation Kinetics in Segmented Polyurethanes: Effects of Soft Segment Length and Structure", *Macromolecules*, 1992, 25, 5724.
23. Benjamin Chu, **Jian Wang**, Yingjie Li and Dennis G. Peiffer, "Ultra Small Angle X-ray Scattering of a Zinc Sulfonated Polystyrene", *Macromolecules*, 1992, 25, 4229.
24. **Jian Wang**, Marta Alvarez, Wanjin Zhang, Zhongwen Wu, Yingjie Li and Benjamin Chu, "Synchrotron Small Angle X-ray Scattering Study of Crystalline Structures and Isothermal Crystallization Kinetics of Poly(aryl ether ether ketones)", *Macromolecules*, 1992, 25, 6943.
25. **Jian Wang**, Marta Alvarez and Benjamin Chu, "Rheological Behaviors of a Mixture of Poly(acrylic acid) and Carboxymethyl cellulose", *Macromolecules*, 1992, 25, 6943.
26. Benjamin Chu, **Jian Wang** and William H. Tumminello, "Fast Determination of Polymer Melt Viscosity by Optical Falling Needle Viscometer", *J. Applied Polym. Sci.*, 1993, 49, 97.
27. **Jian Wang**, Yingjie Li, Dennis G. Peiffer and Benjamin Chu, "Small Angle X-ray Scattering Investigation of Temperature Influences on Microstructures of an Ionomer", *Macromolecules*, 1993, 26, 2633.
28. **James J. Wang**, Dmitry Yavich and Gary Leal, "Time-resolved Measurement of Velocity Gradient Tensor in Polymer Liquid Flow by Photon Correlation Spectroscopy", *Phys.Fluids*, 1994, 6(11), 3519.
29. **James J. Wang**, Thomas J. Hrubec, "Grafted Rubber-like Silicone Gel with Enhanced Oil Compatibility and Its Synthetic Process", US Patent 6,331,604 B1, Dec. 18, 2001
30. **James J. Wang**, Jin L. Hung, "Cosmetic Composition Containing Hydrophilic Spherical Polymethylsilsequioxane Powder", US Patent Application No., 20080118537, May 22, 2008

31. **James J. Wang**, Jin L. Hung, Thomas J. Hrubec, David Granatell, "Topical Cosmetic Composition Containing Hybrid Silicone Composite Powder", US Patent, Submitted for publication.

#### Preprints:

1. Jiacong Shen, **Jian Wang** and Rueli Yin, "The New Development of Preparation of Branched Polymer", *China-West Germany Bilateral Symposium on the Development of Polymer Science*, 1986, 145.
2. Benjamin Chu, Rolf Hilfiker, Jeffrey Shook and **Jian Wang**, "Magnetic Sphere Rheometer", *Proceedings of 1988 U.S. Army CRDEC Conference on Chemical Defence Research*, CRDEC-SP-013, 1988, Vol. 1, p477-483.
3. Benjamin Chu, **Jian Wang** and Wendel J. Shuely, "Solution Behavior of a Random Copolymer of Poly(isobutyl methacrylate-t-butyl aminoethyl methacrylate) 1. Laser Light Scattering Studies", *Proceedings of 1989 U.S. Army CRDEC Conference on Chemical Defence Research*, CRDEC-SP-024, 1989. p239-245.
4. **Jian Wang**, Zhulun Wang, Dennis G. Peiffer, Wendel J. Shuely and Benjamin Chu, "Small Angle X-ray Scattering of Poly(styrene-sodium-2-acrylamido methylpropane sulphonate) in Polar Solvents", *National Synchrotron Light Source Annual Report 1990*, Brookhaven National Laboratory Associated Universities, Inc., p184.
5. Benjamin Chu, Yingjie Li, **Jian Wang**, Qicong Ying, Jian Liu, Jin Hong and Gerard Harbison, "WAXD Studies of the Structural Development during the Conversion of Poly(p-phenylene vinylene) from its Precursor Form", *National Synchrotron Light Source Annual Report 1990*, Brookhaven National Laboratory Associated Universities, Inc., p181.
6. **Jian Wang**, Yingjie Li, Dennis G. Peiffer, Robert D. Lundberg and Benjamin Chu, "Temperature Effect on the Small Angle X-ray Scattering of an Ionomer", *National Synchrotron Light Source Annual Report 1991*, Brookhaven National Laboratory Associated Universities, Inc.
7. Benjamin Chu and **Jian Wang**, "Association Behaviors of an Ionomer-like Copolymer in Solution", *Polymer Preprints*, 1991, 32(1), 527.
8. **Jian Wang**, Dennis G. Peiffer, Wendel J. Shuely and Benjamin Chu "Rheological Study of Polymer-Polymer Complexes of an Ionomer and an Amino-Containing Polymer", *Proc. Amer. Chem. Soc. Div. Polym. Mater. Sci. Eng.*, 1991, 65, 311.

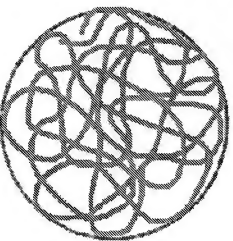
9. Benjamin Chu and **Jian Wang**, "Magnet Enhanced Optical Falling Needle/ Sphere Rheometer", *Polymer Preprints*, 1991, 32(3), 649.

#### **Meetings:**

1. China-Japan Bilateral Symposium on the Synthesis and Materials Science of Polymers, Beijing, P. R. China, Oct.21-24, 1984, "The Glass Temperature Transitions and Liquid-Liquid Relaxation of Star polymers", **Jian Wang**, Jingjiang Liu, Meilin Yang and Jiacong Shen
2. China National Meeting on Polymer Science, Aug. 23-26, 1985, Beijing, P. R. China, "The Dynamic Viscoelastic Properties of SBS Star-Shaped Copolymers", **Jian Wang**, Jingjiang Liu and Jiacong Shen
3. China-West Germany Bilateral Symposium on the Development of Polymer Science, Beijing, P. R. China, August, 1986, " The New Development of Preparation of Branched Polymer", Jiacong Shen, **Jian Wang** and Rueli Yin
4. 1988 U.S. Army Chemical Research, Development and Engineering Center Scientific Conference on Chemical Defence Research, Aberdeen Proving Ground, Maryland, Nov. 15-18, 1988, "Magnetic Sphere Rheometer", Benjamin Chu, Rolf Hilfiker, Jeffrey Shook and **Jian Wang**
5. 1989 U.S. Army Chemical Research, Development and Engineering Center Scientific Conference on Chemical Defence Research, Aberdeen Proving Ground, Maryland, Nov. 15-18, 1989, "Solution Behavior of a Random Copolymer of Poly(isobutyl methacrylate-t-butyl aminoethyl methacrylate) 1. Laser Light Scattering Studies", Benjamin Chu, **Jian Wang** and Wendel J. Shuely
6. National Synchrotron Light Source 1990 NSLS Annual Users' Meeting, Brookhaven, Long Island, New York, May 17-18, 1990:  
(1) "WAXD Studies of the Structural Development during the Conversion of Poly(p-phenylene vinylene) from its Precursor Form", Benjamin Chu, Yingjie Li, **Jian Wang**, Qicong Ying, Jian Liu, Jin Hong and Gerard Harbison;  
(2) "Small Angle X-ray Scattering of Poly(styrene-sodium-2-acrylamido methylpropane sulphonate) in Polar Solvents" **Jian Wang**, Zhulun Wang, Dennis G. Peiffer, Wendel J. Shuely and Benjamin Chu
7. 33rd IUPAC International Symposium on Macromolecules, Montreal, Canada, July 8-13, 1990. "Solution Behavior of Random Copolymers of Styrene with Sodium-2-Acrylamido-2-Methylpropane Sulfonate", Zhulun Wang, **Jian Wang**, Dennis G. Peiffer and Benjamin Chu

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Fig. 1/3

## Hybrid Silicone Composite Powder



Interpenetrating Polymer Network (IPN)

— Dimethylsilicone Network

- - Polymethylsiloxane

22170 H6-2/3

Giansil EPSQ

Acid Probe Map Vol Dot No 1 500  
15.0V 4.0 x 10000 20 SEC 8

02770

FI6.3/3

# Viscosity Comparison at 13%

	Formula 1	Formula 2	Formula 3
EP-LS, g	24.00	21.60	0.00
EPSQ, g	0.00	0.00	24.00
PSQ, g	0.00	2.40	0.00
DC245, g	160.00	160.00	160.00
Viscosity, cPs	402	205	568,000